

## **DOUBLE-CRESTED CORMORANT**

*Phalacrocorax auritus*

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**Management Status:** Federal: None  
California: Species of Special Concern (CDFG, 1998)

### **General Distribution:**

The Double-crested Cormorant, a strictly North American species, occurs widely in freshwater and marine habitats along coastlines and throughout the interior of the continent. Breeding cormorants are known from 41 of 50 states in the United States and among all 10 provinces in Canada (Hatch, 1995, and pers. comm.), as well as from northwestern Mexico, the Yucatan Peninsula, and Belize (Howell and Webb, 1995) and Cuba and the Bahamas (Johnsgard 1993).

Hatch (1995) recognizes at least five rather distinct Double-crested Cormorant breeding populations representing four subspecies (population estimates, in number of pairs, follow in brackets): (1) Atlantic (ssp. *auritus*), along the New England and eastern Canadian coast [96,000]; (2) Interior (ssp. *auritus*), extending east of the Rockies and west of Appalachia and from northern Canada south to Texas and Louisiana [220,000]; (3) the Florida and Caribbean population (ssp. *floridanus*) [14,000]; (4) Alaska (ssp. *cincinatus*) [3,000]; and (5) the West Coast (ssp. *albociliatus*), including Mexico and interior nesting populations [31,000]. The breeding birds of the Bahamas and Cuba are sometimes recognized as a separate subspecies *P. a. heuretus* (Watson et. al, 1991).

In California Double-crested Cormorants are found over much of the state, but breeding populations are very local (Grinnell and Miller, 1944; Garrett and Dunn, 1981; Carter et al., 1992). They occur along most of the state's coast, although in southern California they breed only on a few of the California Channel Islands and on the Coronados Islands in adjacent Baja California Norte. A few nesting colonies are found inland on the coastal slope, such as at Lake Henshaw, San Diego County (formerly; Unitt, 1984), at Anaheim Lake, Orange County (Gallagher, 1997), and along the San Gabriel River, in Pico Rivera, Los Angeles County (Los Angeles County Breeding Bird Atlas data).

In the interior Double-crested Cormorants are rare and localized breeders. Up to several hundred pairs nest at lakes and reservoirs throughout the northern and central California counties of Siskiyou, Modoc, Lassen, Lake, Yolo, and Sacramento (Carter, et al., 1995). Rosenberg et al. (1991) considered Double-crested Cormorants to be relatively common but localized breeders in the Lower Colorado River Valley, particularly along isolated backwaters such as Topock Marsh and on the Imperial National Wildlife Refuge. In winter, large numbers often aggregate at the upper ends of these reservoirs. In the past cormorants have also nested irregularly at the Salton Sea, Imperial and Riverside counties (Dawson, 1923; Garrett and Dunn, 1981). More recently, up to several thousand pairs of cormorants have nested at the southern end of the Salton Sea during the winter and spring of 1996-97 (K. C. Molina pers. obs.).

This species is a widespread but rare to uncommon transient throughout the deserts of southern California (Garrett and Dunn, 1981), although cormorant numbers have increased at a few desert reservoirs, fishing lakes, and other wetlands in recent years.

### **Distribution in the West Mojave Planning Area:**

Double-crested Cormorants are not known to nest in the WMPA and in general are considered rare transients (Garrett and Dunn, 1981). Currently the nearest significant breeding population are those on the Channel Islands and Coronados Islands, and at the Salton Sea, Riverside and Imperial counties.

In the far northern portion of the WMPA, small numbers of Double-crested Cormorants have been observed on sewage ponds within the China Lake Naval Air Weapons Center (California Natural Diversity Database). In the western WMPA, a few cormorants have occurred at small private ponds near Cantil (California Natural Diversity Database). In the Antelope Valley region larger flocks appear at Apollo Lake, Piute Ponds (and occasionally Lancaster Sewage Ponds), Lake Palmdale, Lake Los Angeles (until it was drained in the late 1980s), and Quail Lake (Los Angeles County Museum files; K.L. Garrett, unpubl. data). In the southern WMPA, cormorants occur along the Mojave River, in the Mojave Narrows Regional Park, Spring Valley Lake, Silver Lakes and at a small lake at Jess Ranch near Hesperia (Stephen J. Myers, unpubl. data). Small numbers of migrant Double-crested Cormorants (< 50 individuals) are usually observed in the vicinity of Mojave Narrows during March through May and again in September through January. A maximum count of 150 birds occurred in January 1992 (S.J. Myers, unpubl. Data). Although not specifically recorded at the Cronese Lakes and Harper Dry Lake, Double-crested Cormorants may be considered potential migrants at these locations in years of high rainfall, when other migratory waterbirds have been noted to frequent these lakes. Migrant cormorants undoubtedly occur occasionally, and in small numbers, at other ponds and lakes within the WMPA. Permanent bodies of water such as Lake Silverwood, adjacent to the WMPA, also provide habitat for migrating cormorants.

### **Natural History:**

The Double-crested Cormorant is a large, heavy-bodied waterbird, related to pelicans (32 in., 81 cm, Scott, 1983), with dark glossy plumage. Males are heavier than females: Dunning (1993) indicates that males of the small Florida subspecies *floridanus* average ~1800 g, while females average ~1540 g. *P. a. albociliatus* of the Pacific Coast, southwestern states, and northwestern Mexico is considerably larger; New Mexico males average 2453 g and females 2056 g (Watson et al., 1991). The cormorant's long-necked appearance and sleek, low profile when swimming are distinctive. Young cormorants may show varying degrees of white on the breast and belly plumage (Johnsgard, 1993). Bilateral tufts of pale feathers set behind the eyes and the conspicuous yellow throat pouch of breeding adults distinguish it from the strictly marine Brandt's (*P. penicillatus*) and Pelagic (*P. pelagicus*) cormorants (Scott, 1983). The only other cormorant recorded in the interior of southern California is the Neotropic Cormorant, *P. brasilianus*, a casual vagrant to the Salton Sea and lower Colorado River. Neotropic Cormorants differ from Double-crested in their smaller size, relatively longer tail, white feathered border to the more pointed yellow facial skin patch, and lack of bare yellow skin in the lores (Scott, 1983).

An adept swimmer, the Double-crested Cormorant pursues subsurface schooling fish. They also take non-schooling bottom dwelling fish and, more rarely, other organisms such as mollusks, crustaceans, and amphibians (Johnsgard 1993, Hatch pers. comm.). Their flight profile is characteristic with a distinct bend in the elongated neck. Populations vary from nearly sedentary to highly migratory. Double-crested Cormorants may nest in dense colonies; interior colonies are often associated with heron and egret rookeries. Their nests are composed of twigs, seaweed, and other types of vegetation. Cormorant clutches are usually composed of 3-4 eggs, but may contain up to 6. The incubation period ranges from 24-29 days (Palmer, 1962). Short flights by young cormorants are achieved at age 5-6 weeks; juveniles are independent by 10 weeks (Palmer, 1962).

### **Habitat Requirements:**

Double-crested Cormorant nesting colonies and roost sites are often located near large estuaries and offshore rocks. Cormorants require open water where they can forage for schooling fish. In marine environments, this species may preferentially feed in relatively shallow coastal and estuarine waters rather than in areas of deep upwelling (Boekelheide et al., 1990). In the interior cormorants require isolated sand bars, earthen levees, flooded tree snags, and mature live trees for roosting and nesting. In coastal environments, inaccessible rocky island ledges, coastal cliffs, and highway bridge under supports serve as nest and roost sites (Carter, 1995). Artificial structures, isolated by water, are commonly used for nesting and roosting throughout their range (Harris, 1991; K.C. Molina, pers. obs.). Within the WMPA, Double-crested Cormorants rest during the day and presumably also roost in live cottonwoods and planted elms at Mojave Narrows (S.J. Myers pers. comm.) and on man-made structures (flooded posts, hunting blinds) at Piute Ponds. In aquatic habitats with depauperate fisheries, cormorants may prey on introduced African clawed frogs (*Xenopus laevis*) which appear to be the main prey item for herons and egrets at Piute Ponds (K.L. Garrett, pers. obs.).

### **Population Status:**

During the last 20 years, Double-crested Cormorant populations throughout North America have been increasing. Some 364,000 pairs currently nest in North America (Hatch 1995). Improved breeding success due to reductions in human disturbance and persecution, and reductions in exposure to pollutants are believed responsible for population growth since the turn of the century (Carter et al., 1992; Hatch, 1995). The recent large-scale expansion within the Canadian Prairie Provinces and the western Great Lakes is believed to be associated with newly created reservoirs (Hatch, 1995). Large numbers of Double-crested Cormorants now wintering on the Mississippi Delta are increasingly coming into conflict with changing aquacultural practices, particularly with the growth of catfish farming (Nettleship and Duffy, 1995).

Numbers of Double-crested Cormorants appear to have increased in the WMPA since the 1970s. In the Antelope Valley, for example, Double-crested Cormorants were considered a scarce transient up until 1980 (Los Angeles County Museum files). Currently, groups of up to several dozen individuals are seen, most often in April and May; fewer birds are noted from November through February (Los Angeles County Museum files; K.L. Garrett, unpubl. data).

### **Threats Analysis:**

Except for managed reservoirs, fishing lakes and canals where recreation is intensified, Double-crested Cormorant habitats within the WMPA are largely ephemeral, and as such, marginal. The transitory nature of these habitats likely renders them suitable only as short-term resting stops. Water levels at Piute Ponds are maintained by water treatment effluent and provide open water year round. A breeding population has not been established there, even though suitable nesting habitat is potentially available. Sport hunting may be a potential threat at Piute Ponds and at other waterfowl areas in the WMPA as a few birds may be encountered there during the waterfowl season. In some areas of the United States cormorants have come into conflict with sportfishermen and that potential also exists on fishing and recreation lakes within the WMPA (Bayer, 1989; Hatch, 1995). Double-crested Cormorants have been “controlled” by agencies where they occur in superabundant numbers at recreation areas (e.g. Lake Cachuma, Santa Barbara County; CA Fish and Game). Because of the unpredictable and impermanent nature of most wetland habitats in the WMPA, and because of potential human-induced disturbances at recreation lakes, breeding populations are not likely to develop thus nullifying any threats to reproduction.

### **Biological Standards:**

Suitable cormorant winter habitat in the WMPA is largely restricted to established recreation lakes such as that at Spring Valley and Silver Lakes, and in riverine or wetland habitats with a more permanent water supply such as that at Mojave Narrows and at Piute Ponds. Care should be taken to preserve mature live trees and maintain dead snags within riparian corridors that provide roosting sites for cormorants within the WMPA. To reduce the potential for cormorant-fisherman conflicts, educational programs that promote public awareness of the importance and desirability of wildlife diversity on public lands should be considered.

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